**Table 1 – Feasibility Study Outline Cross-Walk**
Portland Harbor Superfund Site
Portland, Oregon

| EPA Guidance - Suggested FS Outline | Recommended Modified Outline | Notes | Source Documents to be Used to Complete Section | Figures/Tables | Appendix |
|---|---|---|---|---|---|
| Executive Summary | Executive Summary | | | | |
| 1. Introduction | 1. Introduction | | | | |
| 1.1 Purpose and Organization of Report | 1.1 Purpose and Organization of Report | | LWG FS 1.2 | | |
| 1.2 Background Information | 1.2 Background Information | | Final RI Executive Summary | | |
| 1.2.1 Site Description | 1.2.1 Site Description | This allows flow from site use to physical extent to nature and extent of contamination | LWG FS 2.0<br>RI 1.0 | Map of site location | |
| 1.2.2 Site History | 1.2.2 Site History | | RI 1.0 | | |
| 1.2.3 Nature and Extent of Contamination | 1.2.3 Nature and Extent of Contamination | | LWG FS 2.6.2<br>RI 5.0 | | |
| 1.2.4 Contaminant Fate and Transport | 1.2.4 Contaminant Fate and Transport | | LWG FS 2.6.3 | | |
| 1.2.5 Baseline Risk Assessment | 1.2.5 Baseline Risk Assessment | | BHHRA Executive Summary<br>Modify BERA Executive Summary (LWG FS Exec Summary)) | Table of BHHRA COCs<br>BHHRA CSM<br>Table of BERA COCs & Significant COCs<br>BERA CSM | |
| 2. Identification and Screening of Technologies | 2. Identification and Screening of Technologies | | | | |
| 2.1 Introduction | 2.1 Introduction | | | | |
| 2.2 Remedial Action Objectives | 2.2 Remedial Action Objectives<br>2.2.1 Contaminants of Concern | Remedial action objectives aimed at protecting human health and the environment should specify:<br>! The contaminant(s) of concern<br>! Exposure route(s) and receptor(s)<br>! An acceptable contaminant level or range of levels for each exposure route (i.e., a preliminary remediation goal)<br>Remedial action objectives for protecting human receptors should express both a contaminant level and an exposure route, rather than contaminant levels alone, because protectiveness may be achieved by reducing exposure (such as capping an area, limiting access, or providing an alternate water supply) as well as by reducing contaminant levels | LWG FS 3.0 | Table of COCs by media | LWG FS Appendix Da |
| | 2.2.2 Risk-Based Thresholds | | EPA RBT tables | Table of HH RBTs<br>Table of Eco RBTs | Development of RBTs |
| | 2.2.3 ARARs (sediment, surface water, and groundwater; include PTW and Oregon Hot Spots discussion)<br>2.2.4 Development of Remediation Goals (includes discussion of background) | | LWG FS Table 3.4-1 | Table of ARARs<br>Table presenting development of RGs | LWG Appendix M |

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| 2.3 General Response Actions | 2.3 General Response Action | Describe estimation of areas (e.g., Nav Channel, future dredge, etc.) to which treatment, containment or exposure technologies are to be applied. | LWG FS 6.0<br>EPA's GRA table | Table presenting GRAs<br>Map of SDUs | |
| 2.4 Identification and Screening of Technology Types and Process Options | 2.4 Identification and Screening of Technology Types and Process Options | | | | |
| 2.4.1 Identification and Screening of Technologies | 2.4.1 Identification and Screening of Technologies<br>2.4.1.1 No Action<br>2.4.1.2 Institutional Controls<br>2.4.1.3 Monitored Natural Recovery<br>2.4.1.4 Enhanced Monitored Natural Recovery<br>2.4.1.5 Containment in Place<br>2.4.1.6 In-Situ Treatment<br>2.4.1.7 Removal<br>2.4.1.8 On-Site Disposal<br>2.4.1.9 Off-Site Disposal<br>2.4.1.10 Ex-Situ Treatment | | LWG FS 6.0 | | LWG Appendix Ja, Jc, S |
| 2.4.2 Evaluation of Technologies and Selection of Representative Technologies | 2.4.2 Evaluation of Technologies and Selection of Representative Technologies | | | Table presenting technologies screen | |
| 3. Development and Screening of Alternatives | 3. Development and Screening of Alternatives | | | | |
| 3.1 Development of Alternatives | 3.1 Focused COCs | | | | |
| | 3.2 RALs | | LWG FS 4.0 | RALs Table<br>RAL curves by SDU | LWG FS Appendix P |
| | 3.3 SDUs | | CDM develop discussion of SDU development | | |
| | 3.4 SMAs<br>3.3.1 SMA Identification Process<br>3.3.2 Areas and Volume of Contamination | | LWG FS 5.0 | Map of SMAs<br>Table of Areas & Volumes by SDU | |
| | 3.5 Remedial Technology Assignment<br>3.4.1 Identification of PTW and Hot Spots<br>3.4.2 Sediment Disposal and Management<br>3.4.3 Groundwater Discharge Rates<br>3.4.4 Assignment of Technologies to SDUs | | LWG FS 5.0 | Map of PTW<br>Map of Hot Spots | |
| | 3.6 Development of Alternatives | Discuss supporting information for focused COCs | LWG FS 7.0 | CDM Colorful Table | |
| 3.2 Screening of Alternatives | 3.7 Screening of Alternatives | Defined alternatives are evaluated against the short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost. | | | |
| 3.2.1 Introduction | 3.7.1 Introduction | Effectiveness defined as protectiveness and reduction in toxicity, mobility, and volume for both short-term and long-term. | | | Cost development<br>LWG FS Appendix K |

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| | | Discuss SWAC concept.<br><br>Implementability, as a measure of both the technical and administrative feasibility of constructing, operating, and maintaining a remedial action alternative, including the availability of treatment, storage, and disposal services and capacity, and the requirements for, and availability of, specific equipment and technical specialists.<br><br>Bases for screening cost estimates may include cost curves, generic unit costs, vendor information, conventional cost-estimating guides, and prior similar estimates as modified by site-specific information. Cost estimates for items common to all alternatives or indirect costs (engineering, financial, supervision, outside contractor support, contingencies) do not normally warrant substantial effort. Both capital and O&M costs should be considered. | | | |
| 3.2.2 Alternative 1 | 3.7.2 Alternative A | | | | |
| 3.2.2.1 Description | 3.6.2.1 Description | | | | |
| 3.2.2.2 Evaluation | 3.6.2.2 Evaluation | Discuss effectiveness, implementability, and cost (need to have thresholds for each of them) | | | |
| 3.2.3 Alternative 2 | 3.7.3 Alternative Bi | | | | |
| 3.2.3.1 Description | 3.6.3.1 Description | | | | |
| 3.2.3.2 Evaluation | 3.6.3.2 Evaluation | | | | |
| 3.2.4 Alternative 3 | 3.7.4 Alternative Br | | | | |
| 3.2.4.1 Description | 3.6.4.1 Description | | | | |
| 3.2.4.2 Evaluation | 3.6.4.2 Evaluation | | | | |
| | 3.7.5 Alternative Ci | | | | |
| | 3.6.3.1 Description | | | | |
| | 3.6.3.2 Evaluation | | | | |
| | 3.7.6 Alternative Cr | | | | |
| | 3.6.4.1 Description | | | | |
| | 3.6.4.2 Evaluation | | | | |
| | 3.7.7 Alternative Di | | | | |
| | 3.6.3.1 Description | | | | |
| | 3.6.3.2 Evaluation | | | | |

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| | 3.7.8 Alternative Dr | | | | |
| | 3.6.4.1 Description | | | | |
| | 3.6.4.2 Evaluation | | | | |
| | 3.7.9 Alternative Ei | | | | |
| | 3.6.3.1 Description | | | | |
| | 3.6.3.2 Evaluation | | | | |
| | 3.7.10 Alternative Er | | | | |
| | 3.6.4.1 Description | | | | |
| | 3.6.4.2 Evaluation | | | | |
| | 3.7.11 Alternative Fi | | | | |
| | 3.6.3.1 Description | | | | |
| | 3.6.3.2 Evaluation | | | | |
| | 3.7.12 Alternative Fr | | | | |
| | 3.6.4.1 Description | | | | |
| | 3.6.4.2 Evaluation | | | | |
| | 3.7.13 Alternative Gi | | | | |
| | 3.6.3.1 Description | | | | |
| | 3.6.3.2 Evaluation | | | | |
| | 3.7.14 Alternative Gr | | | | |
| | 3.6.4.1 Description | | | | |
| | 3.6.4.2 Evaluation | | | | |
| | 3.7.15 Summary | Describe Alternatives eliminated and those carried forward to detailed analysis | | Figure presenting screen | |
| 4. Detailed Analysis of Alternatives | 4. Detailed Analysis of Alternatives | | LWG FS 8.0 | | |
| 4.1 Introduction | 4.1 Introduction<br>4.1.1 Evaluation Methods<br>4.1.1.1 Areas/Volumes of Active Remediation<br>4.1.1.2 Capping Models<br>4.1.1.3 Dredging Models<br>4.1.1.4 Time to Protectiveness | Include dredge production estimates and release estimates | ERDF production rate report<br>ERDF residuals report | | LWG FS Appendix G, Ha,Hc, Ia, Ib,La, Lb |
| 4.2 Individual Analysis of Alternatives | 4.2 Individual Analysis of Alternatives | | | | Cost development<br>LWG FS Appendix K |
| 4.2.1 Alternative 1 | 4.2.1 Alternative A | | | | |
| 4.2.1.1 Description | 4.2.1.1 Description | | | | |
| 4.2.1.2 Assessment | 4.2.1.2 Assessment<br>4.2.1.2.1 Overall Protection of Human Health and the Environment<br>4.2.1.2.2 Compliance with ARARs (B)<br>4.2.1.2.3 Long-Term Effectiveness and | A)the long-term uncertainties associated with land disposal;<br>B) the goals, objectives, and requirements of the Solid Waste Disposal Act;<br>C) the persistence, toxicity, and mobility of hazardous substances and their constituents, and their propensity to bioaccumulate; | | | |

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| | Permanence (A,B,C,D,F,G)<br>4.2.1.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment (B,C)<br>4.2.1.2.5 Short-Term Effectiveness (D,G)<br>4.2.1.2.6 Implementability<br>4.2.1.2.7 Cost (E,F) | D) short-and long-term potential for adverse health effects from human exposure;<br>E) long-term maintenance costs;<br>F) the potential for future remedial action costs if the alternative remedial action in question were to fail; and<br>G) the potential threat to human health and the environment associated with excavation, transportation, and redisposal, or containment. | | | |
| 4.2.2 Alternative 2 | 4.2.2 Alternative 1 | | | | |
| 4.2.2.1 Description | 4.2.2.1 Description | | | | |
| 4.2.2.2 Assessment | 4.2.2.2 Assessment | | | | |
| 4.2.3 Alternative 3 | 4.2.3 Alternative 2 | | | | |
| 4.2.3.1 Description | 4.2.3.1 Description | | | | |
| 4.2.3.2 Assessment | 4.2.3.2 Assessment | | | | |
| | 4.2.4 Alternative 3 | | | | |
| | 4.2.4.1 Description | | | | |
| | 4.2.4.2 Assessment | | | | |
| | 4.2.5 Alternative 4 | | | | |
| | 4.2.5.1 Description | | | | |
| | 4.2.5.2 Assessment | | | | |
| 4.3 Comparative Analysis | 4.3 Comparative Analysis<br>4.3.1 Overall Protection of Human Health and the Environment<br>4.3.2 Compliance with ARARs<br>4.3.3 Long-Term Effectiveness and Permanence<br>4.3.3.1 Magnitude of Residual Risk<br>4.3.3.2 Adequacy and Reliability of Controls<br>4.3.4 Reduction in Toxicity, Mobility, and Volume through Treatment<br>4.3.5 Short-Term Effectiveness<br>4.3.5.1 Protection of Community During Remedial Actions<br>4.3.5.2 Protection of Workers During Remedial Actions<br>4.3.5.3 Environmental Impacts<br>4.3.5.4 Time Until Remedial Action Objectives Are Achieved<br>4.3.6 Implementability<br>4.3.6.1 Technical Feasibility<br>4.3.6.2 Administrative Feasibility | | LWG FS 9.0 | Figure comparing alternatives | |

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| | 4.3.6.3 Availability of Services and Materials<br>4.3.6.4 Disposal Site Availability<br>4.3.7 Cost<br>4.3.7.1 Capital Cost<br>4.3.7.2 Operation and Maintenance Costs<br>4.3.7.3 Present Worth Cost | | | | |
| Bibliography | Bibliography | | | | |